

SETTING THE SCENE

CHAPTER I

GLOBAL TAILINGS REVIEW AT A GLANCE: HISTORY AND OVERVIEW

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1. INTRODUCTION

The catastrophic failure of a tailings facility at Vale's Corrego do Feijão mine in Brumadinho in January 2019 was a tipping point for the mining sector. A month after this tragedy, on 26 February 2019, the International Council on Mining and Metals (ICMM) made a public commitment to establish a new standard for the safer management of tailings facilities. Having engaged on similar issues in the past, on 27 March 2019, a joint public announcement was made that the initiative would be co-convened by the ICMM, the United Nations Environment Programme (UNEP) and the UN-backed Principles for Responsible Investment (PRI), with each party having an equal stake and say in decision making. This marked the launch of the Global Tailings Review ('the Review').

The co-convened model of equal representation from industry, investor and government stakeholders was designed to give civil society and the public confidence that the initiative would have the necessary level of independence and not be subordinate to industry interests. It was also an acknowledgement that no single stakeholder can solve the problem and that community and investor trust in the mining sector needed to be restored in the wake of a number of such high-profile disasters. In addition, the tri-partite, co-convened, approach broadened the range of perspectives and specialist knowledge that could be drawn on to develop a credible, technically sound, fit-for-purpose standard.

This introductory chapter:

- outlines the governance arrangements that were put in place for the Review
- documents the timeline and trajectory of the Review, from establishment through to the finalisation of the Global Industry Standard

on Tailings Management ('the Standard') and associated documents

- explains how the Review was conducted and the Standard formulated, focusing particularly on key roles
- provides an overview of the content and structure of the Standard
- presents some reflections on the process.

Parts A and B of the chapter provide an overview of the process and the Standard respectively. Part C contains observations and reflections on the process.

PART A: THE PROCESS

2. THE GOVERNANCE MODEL: ROLES AND RESPONSIBILITIES

Maintaining independence and taking a multi-stakeholder approach were at the core of the Review process.

2.1 CO-CONVENERS

In an increasingly globalised world, many of the challenges we face require a global response and coordinated effort. Mining is one of those sectors that is particularly reliant on multi-stakeholder engagement so that it can be undertaken responsibly and with minimal adverse impact on human life and the environment.

The multi-partite, co-convened, model is not unique. Shared power arrangements of this kind have been utilised on occasions in the past by the mining sector and other key actors, as a mechanism for developing a consensus approach to contentious issues. For such a model to be successful it requires a nurturing, adaptive and independent management approach

which includes continuous dialogue, meaningful engagement and effective facilitation of consensus. The model also requires that the key participants have a level of mutual trust, are willing to share control and are prepared to accept outcomes that may not always appear to be optimal from their own perspectives.

The three co-conveners, UNEP, ICMM and PRI were each represented by two individuals:

1. UNEP: Ligia Noronha, Director, Economy Division and Elisa Tonda, Head of the Consumption and Production Unit
2. ICMM: Tom Butler, CEO and Aidan Davy, COO
3. PRI: Adam Matthews, Director of Ethics and Engagement for the Church of England and John Howchin, Secretary-General – The Council on Ethics Swedish National Pension Funds

The three parties had an equal say throughout the process. Key decisions were made by mutual agreement, beginning with the development of the foundational Scope and Governance document and the selection of the independent Chair.

In terms of input to the process, each of the co-conveners brought their areas of expertise and the perspectives of their constituents. The ICMM was also in a position to provide resourcing and administrative support to the Project Management Unit (PMU).

The Scope and Governance document established working assumptions, the overall scope of the Review and set certain parameters. It also retained flexibility for the Chair and the Expert Panel ('the Panel') to revisit the scope as the work progressed. The scope of the Standard was defined as including, but not limited to:

- a global and transparent consequence-based tailings facility classification system with appropriate requirements for each level of classification
- a system for credible, independent reviews of tailings facilities
- requirements for emergency planning and preparedness.

The full Scope and Governance document can be found on the Review website, [here](#). The Terms of Reference for the Chair and the Panel, which were similarly co-developed and endorsed by the three co-conveners, can also be found in this document.

2.2 INDEPENDENT CHAIR

The selection of the independent Chair took approximately two months. The three co-conveners agreed that it was vital to select an individual who was not closely associated with any one of the three key sets of stakeholders within the mining sector: industry, government and civil society. Knowledge of the sector was therefore considered secondary to the ability to lead and facilitate consensus among highly diverse views. This proved prescient, as one of the most challenging aspects of the Chair's role was to facilitate consensus within the Expert Panel and amongst the co-conveners, while working towards a very ambitious timeline. In May 2019, Dr Bruno Oberle was appointed Chair of the Review (see Box 1).

Box 1: Brief Biography of the Chair of the Review, Dr Bruno Oberle

After completing his studies in environmental science, engineering and economics at the Swiss Federal Institute of Technology (SFIT), Dr Oberle founded and managed consultancy companies in the field of environmental management. In 1999, Dr Oberle was appointed Deputy Director of the Federal Office for the Environment, Forests and Landscape of Switzerland and, in 2005, Director of the newly established Federal Office for the Environment. Dr Oberle represented Switzerland in international negotiations as Secretary of State for the Environment. He also played a key steering role in the Global Environmental Facility (GEF) and in establishing the Green Climate Fund (GCF). Since 2016, Dr Oberle has been a Professor for Green Economy and Resource Governance and Director of the International Risk Governance Centre at L'Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland. He is also the President of the World Resources Forum Association.

The Scope and Governance document describes the Chair as a:

'Senior, respected person who will be seen as independent. S/he will likely be a former employee of multilateral organisation, a former government minister, or some other person with demonstrated experience of chairing diverse groups to develop policy or standards, ideally complemented with senior (board level) experience in the private sector.'

2.3 MULTI-STAKEHOLDER ADVISORY GROUP

A multi-stakeholder Advisory Group (AG) was assembled by the co-conveners in spring 2019. Following the first meeting in May, some members of the AG raised concerns about the lack of sufficient representation from civil society and affected communities. The Chair responded by collating recommendations from the AG membership and then

inviting a number of additional advisers to join. The full and final list of the members is provided below (Table 1).

Note: Several proposed members could not accept due to unavailability, and one was only able to participate virtually due to inability to travel at the time.

Table 1. Composition of the Multi-stakeholder Advisory Group

Name	Organisation	Title
Antonio Pedro	UN Economic Commission for Africa	Director: Central Africa
Brian Kohler	IndustriALL	Director – Health, Safety and Sustainability
Bruno Milanez	Universidade Federal de Juiz de Fora, Brazil	Associate Professor
Charles Dumaresq	Mining Association of Canada	Vice President: Science and Environmental Management
Chris Sheldon*	World Bank	Practice Manager: Energy & Extractives
David Poulter	International Finance Corporation (IFC)	Principal Mining Specialist
Elaine Baker	University of Sydney/GRID Arendal	Director: Marine Studies Institute; UNESCO Chair: Marine Science
Günter Becker	Munich Re	Head of Mining
Harvey McLeod	Klohn Crippen Berger	Vice President: Strategic Marketing
Michael Davies	Teck Resources	Senior Advisor: Tailings & Mine Waste
Nuskmata Mack	Secwepemc & Nuxalk Indigenous Peoples	Member of Xat'sull (Soda Creek) First Nation
Paul Bateman	International Cyanide Management Code	President and Chair of the Board of Directors
Payal Sampat	Earthworks	Director: Mining Programme
Rebecca Campbell	White & Case	Partner: Global Head of Mining & Metals
Steve Edwards	International Union for Conservation of Nature (IUCN)	Senior Programme Manager: Business and Biodiversity Programme
Upmanu Lall	Columbia Water Center	Director

* Note: Due to limited availability, in the latter part of the process Chris Sheldon was replaced by Sven Renner, Manager of the World Bank's Extractives Trust Fund.

AG members played a critical role in maintaining the independence of the Review throughout the process and made several key contributions, both collectively and through bilateral and other engagements. The main contributions were:

- May 2019 – First AG meeting**
The AG presented a list of individuals from which the Expert Panel was selected.
- August 2019 – Second AG meeting**
The AG rejected Draft 1 of the Standard and, as a result, the Panel reshaped and developed Draft 2 of the Standard on which the AG provided detailed comments. The Panel responded in kind and the resulting Draft 3 reflected much of the AG feedback.
- November 2019 – Leveraging the AG network**
The PMU sought the AG's advice and expertise in the execution of the public consultation workshops, including leveraging in-country contacts.
- February 2020 – Third AG meeting**
The AG were provided with a post-consultation provisional draft ahead of an in-person meeting in early February 2020. Members' feedback was integrated into the following iteration of the Standard which was then submitted to the co-conveners for consideration.

- Contribution to GTR Papers**
Several of the AG members contributed to the GTR Papers, either as authors or co-authors, or by providing contacts for contributors.
- Bilateral discussions with the Expert Panel**
Throughout the process, AG members had the opportunity to engage bilaterally with individuals on the Expert Panel on matters relevant to their respective disciplines. These discussions often led to concrete wording suggestions for specific Standard Requirements.

2.4 EXPERT PANEL

The Panel was selected by the Chair. The co-conveners and, as mentioned above, the AG, put forward a list of experts from which the Chair selected a shortlist. He then conducted virtual interviews with the shortlisted experts and selected the final panellists.

The Panel comprised seven experts from a range of disciplines: geotechnical, social, environmental, organisational behaviour and legal. This composition broadly reflected the requirements of the co-conveners.

Table 2. Composition of the Expert Panel

Name	Organisation	Expertise
Prof Andrew Hopkins	Emeritus Professor of Sociology, Australian National University	Governance and organisational behaviour
Dr Angela Küpper	Director and Principal Geotechnical Engineer, BGC Engineering Inc.	Tailings engineering
Prof Deanna Kemp	Sustainable Minerals Institute (SMI), The University of Queensland	Community and human rights
Prof Dirk van Zyl	University of British Columbia	Tailings engineering
Karen Nash	Senior Associate, Behre Dolbear; Director, Environmental & Social Performance, MDS Mining & Environmental Services	Environment
Prof Mark Squillace	University of Colorado Law School	Legal
Susan Joyce	President, On Common Ground Consultants	Social performance and Human Rights

For more information on Panel members' backgrounds, readers should refer to the Review website, link [here](#).

The Scope and Governance document describes the Expert Panel as:

'Representatives: no more than 7 technical experts with diverse range of disciplines (such as safety/risk analysis, tailings, organisational behaviour, (ex) regulator, community/social expert), selected in accordance with a pre-determined minimum list of qualifications.'

The multidisciplinary nature of the Panel was a key ingredient in delivering a trusted and credible standard underpinned by a holistic approach to tailings management.

2.5 PROJECT MANAGEMENT UNIT

Day to day management was undertaken by the PMU comprising Antonia Mihaylova, Project Manager, and Audrey Hackett, Senior Advisor – Strategy and Delivery. The PMU was likewise selected by the Chair based on a list of recommendations from the co-conveners. Key responsibilities of the PMU included:

- coordinating the Standard development process – consolidating, reviewing and editing inputs from the Panel
- oversight and editing of other deliverables including the GTR Papers and the Consultation Report
- day-to-day management, internal and external communications, planning and scheduling, execution of public consultation workshops and other events, and preparation of summary reports amongst other tasks.

3. DELIVERABLES

Below is a summary of the documents and resources developed as part of the Review.

- The **Standard** – the main output of the Review is the Global Industry Standard on Tailings Management. It contains a preamble, 15 principles and 77 requirements organised under six topic areas, a glossary and tables in annex.
- The accompanying volume – **Towards Zero Harm: A Compendium of Papers prepared for the Global Tailings Review** (formerly Recommendations Report) – a set of papers written from diverse disciplinary perspectives that address a number of issues, challenges and developments in the area

of tailings management. Amongst other things, the papers provide background on the intent and evolution the Standard, and, where appropriate, draw out key messages and recommendations for the industry and other actors that go beyond the formal Requirements of the Standard.

- **Consultation Report** and publication of all submissions (with consent) – This report contains the specific suggestions, criticisms and requests of the individuals and organisations that participated in the public consultation. The summary and analysis of this feedback was prepared by an independent service provider Traverse, who managed the online consultation effort. The Consultation Report also outlines how this feedback was addressed in the final version of the Standard. In accordance with international best practice, and with the consent of those who provided feedback, we have published the submissions on the Review's website: www.globaltailingsreview.org.
- **Website** – The www.globaltailingsreview.org website has been the main source of information about the Review. Set up from the outset, the website is the repository of all governance documentation, published resources and news updates. The website content was handled by the Review's PMU, with IT and graphic design support provided by the ICMM.

4. TIMELINE

The Review process formally commenced in May 2019 following the appointment of an independent Chair (see above). A high-level retrospective timeline of the development of Standard is provided in Figure 1, below.

The tragedy in Brumadinho required an immediate response. The co-conveners' original intent was to complete the process by the end of 2019 and to launch the Standard on the one-year anniversary of the tragedy. Some considered this timeline to be very ambitious and expressed fears that the time pressures may unintentionally jeopardise quality. The counter-view was that a tight timeline reinforced the urgency of the issue, maintained momentum and allowed all parties to stay focused on the ultimate goal of the Review – to prevent catastrophic tailings facility failures.

Box 2: Related Initiatives

Underlining the urgent global response to the tragedy in Brumadinho and in parallel to the Review, there are now a number of other initiatives working towards the same objective. They include:

- UNEA-4: United Nations Environment Assembly Resolution on Mineral Resource Governance;
- ICMM's detailed technical guidance on tailings;
- PRI's Mining Safety and Tailings Initiative;
- Responsible Mining Initiative (RMI) 2020 report on tailings management.
- Establishment of a Global Research Consortium on Tailings.

More information about several of these initiatives can be found within this volume.

The multi-disciplinary approach to the development of the Standard provided layers of valuable reflection, but also added to the complexity of the effort. As a result, a number of iterations of the text were required, which translated into timeline extensions. The timeline of the Review was extended twice in response to feedback received from the Advisory Group and the co-conveners. The work was completed in July 2020.

The final phase of the Review was extended, as it coincided with the unprecedented global outbreak of COVID-19 in early 2020 and the ensuing pandemic. This resulted in a several month delay of the finalisation and release of the final draft of the Standard.

Figure 1 provides a visual representation of the main phases of the Review process. These were:

(i) Commitment and inception: The co-conveners committed to establishing a new standard on tailings management. As a result, the Global Tailings Review process was initiated, starting with the appointment of an independent Chair, a multi-stakeholder Advisory Group and the formation of the Expert Panel.

(ii) Review and drafting: The second phase included study trips by the Chair and members of the Expert Panel to Samarco, Brumadinho and Mount Polley, and other mines in Brazil and Canada. The Expert Panel reviewed existing standards and practices and developed a series of draft texts. The Advisory Group and the co-conveners subsequently provided feedback on these drafts. The full consultation draft was completed towards the end of October 2019.

(iii) Public consultation: This was undertaken both online and in person in a range of key mining jurisdictions.

(iv) Addressing public consultation feedback: This phase entailed integration of public consultation feedback, further engagement with the Advisory Group and the development of another iteration of the Standard.

(v) Co-conveners' consideration and endorsement: In this final stage, the Standard and accompanying documents were submitted to the co-conveners for discussion, negotiation, consideration and endorsement. As noted above, this phase was extended by approximately two months due to the global pandemic at the time.

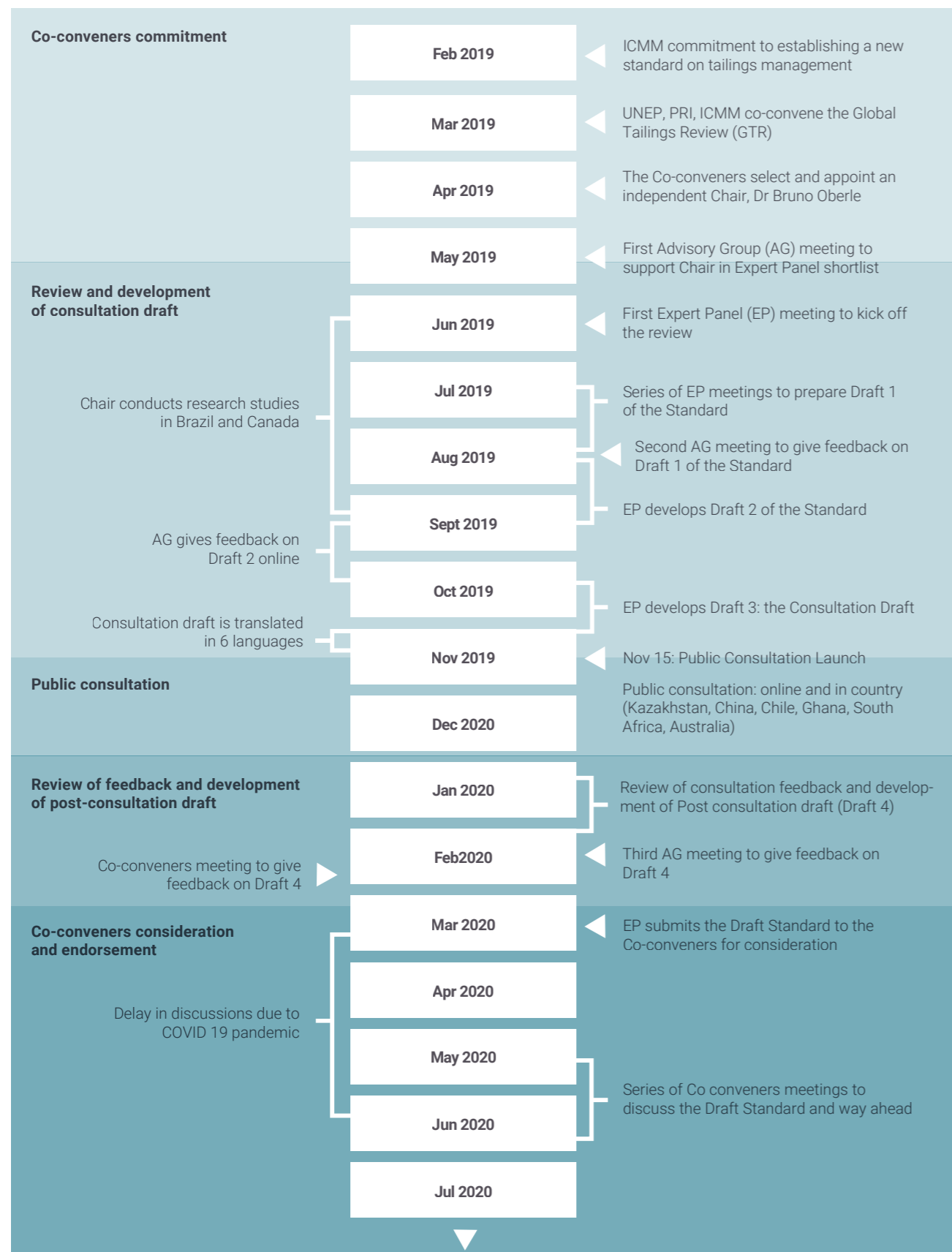


Figure 1: Global Industry Standard on Tailings Management Timeline

PART B: OVERVIEW OF THE STANDARD

The Standard is directed at Operators¹ and applies to facilities. It makes clear that extreme consequences to people and the environment from catastrophic tailings facility failures are unacceptable. Operators must have zero tolerance for human fatalities and strive for zero harm to people and the environment from the earliest phases of project conception. To be compliant with the Standard, Operators must use specified measures to prevent the catastrophic failure of tailings facilities and to implement best practices in planning, design, construction, operation, maintenance, monitoring, closure and post closure activities. Overall, conformance is expected where there is no conflict with the legislative requirements of the jurisdictions where facilities are located.

In accordance with the Review's Scope and Governance document, the Standard does not:

- contain detailed technical design criteria for tailings facilities
- exclude or ban any technologies
- apply to riverine, deep sea and non-tailings related storage facilities
- cover standards for rehabilitation of affected areas.

The Standard's structure is logical, not chronological. It is underpinned by an integrated approach to tailings management which was the overarching objective of the Panel. To give the Standard structure, the Requirements are organised around six Topic Areas, 15 Principles and 77 specific Requirements. It is important to note that future development of implementation protocols would further clarify expected levels of performance.

Topic Area I focuses on project-affected people. In order to respect human rights, including the individual and collective rights of indigenous and tribal peoples, a human rights due diligence process is required to identify and address those rights that are most at risk from a tailings facility or its potential failure. To demonstrate this respect, project-affected people, must be afforded opportunities for meaningful engagement in decisions that affect

them. The Requirements within Topic Area I are intended to be cross-cutting in terms of being addressed across all operational activities and ongoing throughout the tailings facility lifecycle.

Topic Area II requires Operators to develop knowledge about the social, environmental and local economic context of a proposed or existing tailings facility, and as part of this, to conduct a detailed site characterisation. It asks for a multi-disciplinary knowledge base to be developed and used by the Operator and key stakeholders in an iterative way to enable all parties to make informed decisions throughout the tailings facility lifecycle. These decisions will arise in the context of the alternatives analyses, the choice of technologies and facility designs, emergency response plans, and closure and post-closure plans, amongst others.

Topic Area III aims to lift the performance bar for designing, constructing, operating, maintaining, monitoring, and closing tailings facilities. Operators are asked to demonstrate the ability to upgrade a facility at a later stage to a higher consequence classification. For existing facilities, where upgrading is not feasible, the Operator must reduce the consequences of a potential failure. Recognising that tailings facilities are dynamic engineered structures, Topic Area III requires the ongoing use of an updated knowledge base, consideration of alternative tailings technologies, the use of robust designs and well-managed construction and operation processes to minimise the risk of failure. A comprehensive monitoring system must support the full implementation of the Observational Method and a performance-based approach must be taken for the design, construction and operation of tailings facilities.

Topic Area IV focuses on the ongoing management and governance of a tailings facility. It provides for the designation and assignment of responsibility to key roles in tailings facility management, including an Accountable Executive, an Engineer of Record and a Responsible Tailings Facility Engineer. Further, it sets standards for critical systems and processes, such as the Tailings Management System and independent reviews, which are essential to upholding the integrity of a tailings facility throughout its lifecycle. Cross-functional collaboration and the development of a learning organisational culture that welcomes the

1. The Standard defines 'Operator' as: an entity that singly, or jointly with other entities, exercises ultimate control of a tailings facility. This may include a corporation, partnership, owner, affiliate, subsidiary, joint venture, or other entity, including any State agency, that controls a tailings facility.

identification of problems and protects whistle-blowers are also included.

Topic Area V covers emergency preparedness and response in the event of a tailings facility failure. Operators must avoid complacency about the demands that would be placed on them in the event of a catastrophic failure. The Standard requires Operators to consider their own capacity, in conjunction with that of other parties, and to plan ahead, build capacity and work collaboratively with other parties, in particular communities, to prepare for the unlikely case of a failure. Topic Area V also outlines the fundamental obligations of the Operator in the long-term recovery of affected communities in the event of a catastrophic failure.

Topic Area VI requires public disclosure of information about tailings facilities to support public accountability, while protecting Operators from the need to disclose confidential commercial or financial information. The Standard concludes by requiring that Operators commit to transparency, and participate in global initiatives to create standardised, independent, industry-wide and publicly accessible information about tailings facilities.

EVOLUTION OF THE STANDARD

As mentioned above, there were a number of iterations of the Standard. However, there were certain aspects on which the Panel remained firm in their intention to lift the performance bar for the industry as a whole. As with any negotiated product, there were concessions and nuances added to the language as it evolved. However, the intent of the Panel was generally respected, and the resulting Standard contains, to one degree or another, 'step-changes' in all discipline areas.

PART C: OBSERVATIONS AND REFLECTIONS ON THE PROCESS

DECISION MAKING AND WAYS OF WORKING CO-CONVENERS

The co-conveners had a series of meetings and checkpoints throughout the process. The most extensive engagements came at the beginning, in the lead up to the public consultation, and towards the end of the process during the consideration and endorsement phase.

Each co-convenor also presented their respective positions on key issues formally as part of the public consultation. All of the minor issues and a number of more substantial disagreements were resolved in the resulting post-consultation iterations of the Standard. Key points of divergence were left to be resolved during the negotiations amongst the co-conveners in the final consideration and endorsement phase.

WITHIN THE PANEL

The general approach was to endeavour to reach consensus on all issues. However, there were times when this was not possible. In these cases, the Chair assumed responsibility for the final decision, taking account of both the views of the Panel member with expertise in the area in question and the objectives of the co-conveners.

THE 'OWNERSHIP' DIVISION WITHIN THE PANEL

Each expert was assigned responsibility for a sub-set of Requirements that linked to their areas of expertise. This work involved drafting the Requirements, consulting on and addressing feedback from other members of the Panel. Some of this work was done remotely, but at all key stages of the Review the full Panel convened to examine all Requirements together. In addition, sub-groups of the Panel were formed to problem-solve, engage bilaterally with the AG and work on cross-cutting topics such as the integrated management system.

While wordsmithing and improvements were sometimes discussed bilaterally or in smaller working groups, when it came to finalising the Standard, every single edit to the text was collectively considered and endorsed by all seven Panel members and the Chair. This process, while time consuming, helped to maintain the integrated approach and delivered an end product which was coherent, technically sound and credible.

A good example of how this process facilitated the integration of a discrete topic is the approach taken by the Panel to the issue of climate change. Instead of drafting a stand-alone requirement for Operators to consider climate change impacts, the Panel identified multiple decision points where these impacts needed to be addressed, along with other considerations. This approach ensures that climate change remains in scope for all risk management and review activities, and that information is shared systematically across the operation.

POST-CONSULTATION DECISION-MAKING

The Consultation Draft of the Standard was released in mid-November 2019 and stakeholders were given until the end of December to provide feedback. The consultation process was conducted both online, and in-person in several key mining jurisdictions globally. Respondents were asked to provide comments on individual Requirements and on the Standard more generally, and were also invited to make suggestions for re-wording.

The consultation responses were collated and provided to the Panel on an ongoing basis throughout the consultation period. Two weeks after the consultation closed, the Panel was provided with a single consolidated file containing all comments in a structured way, based on 'coding' or categorisation of key terms and themes. Overarching and cross-cutting comments were considered by the Panel at their first post-consultation in-person meeting.

Due to the volume of feedback, and in the interest of saving time, each Panel member was tasked with: (i) presenting a summary of the feedback on the Requirements for which they had responsibility; and (ii) proposing a rewording if this was deemed necessary. These proposals were then discussed and agreed by the full Panel. A **triage process** was applied to facilitate decision-making.

Triage process to addressing public consultation feedback

1. Is the intent of this Requirement clear?
2. Does the Panel want to keep or remove this Requirement?
3. Does the Panel want to keep it as is or reword it?

As to be expected, there was both a lot of duplication and plenty of divergence in the views that were expressed. Naturally, individuals and organisations within the same stakeholder group often made similar comments while, conversely, different stakeholder groups had different views across a broad range of issues. This required making iterative adaptations, looking for points of commonality, assessing the practicality of proposals, and testing the logic and content of the Standard against the objectives of the Review on an ongoing basis. Overall, the majority of the feedback was focused on a limited number of specific controversial themes which are explored in more detail in the Global Tailings Review Consultation Report released alongside this report.

REFLECTIONS

There are a number of reflections and lessons from the Review process that are worth capturing for any future initiatives of this nature. The governance model, the ambitious timeline and the multidisciplinary Panel were aspects of the Review that gave it external credibility, but, at the same time, made the process particularly challenging.

Below are some key overarching takeaways from the Chair and PMU:

1. **Scope and governance.** The scope of the Review was frequently discussed throughout the process and there were conflicting views between stakeholders concerning the breadth of scope required to achieve the ultimate objective of the Review. This made it difficult to maintain focus on some of the detail of the proposed Requirements throughout the process. The Scope and Governance document was intentionally drafted by the co-conveners to allow for flexibility to amend the parameters should public feedback or the Chair's assessment point to the need to adjust the scope. Ultimately, this allowed the Chair and Panel to maintain control over the process.
2. **Schedule.** The ambitious work plan from the outset, along with the dispersed geographical spread of the Panel, proved challenging at a number of critical junctures. The schedule also forced part of the Review to be conducted in parallel to the drafting effort (e.g. the comparative

assessment of tailings management legislation across a number of mining jurisdictions). To address these challenges, strong project management controls were required. Technology also played a big part in keeping people connected and the information flowing.

3. **Challenges with logistics.** Related to the point above, the geographical spread often made it logistically challenging to accommodate the experts' working times and availability. This proved particularly difficult in terms of arranging in-person meetings. Having a quorum of 100 per cent also often led to delays even with virtual meetings. Early calendar sharing and the advance block-booking of dates allowed a level of certainty around some aspects of planning.
4. **Managing the Advisory Group and co-conveners.** The second AG meeting, in August 2019, was scheduled so that it overlapped with one of the co-conveners' checkpoints. The joint meeting, which was attended by representatives from two of the three co-conveners, proved to be problematic due to this being perceived by some members of the AG as undermining the independence of the process. This was therefore the last combined meeting held. The timing and sequencing of meetings needed to be planned carefully so that information was shared evenly and participants were adequately informed in advance of key decision points.
5. **Managing the consultation process.** Additional iterations during the pre-consultation drafting phase resulted in the delay of the consultation timeline. Unintentionally, this led to the consultation being conducted from mid-November until the end of December 2019, coinciding with end-of-the-year processes and seasonal holiday festivities. Some perceived this as a benefit and utilised the quieter period to prepare a thorough submission; however, for the in-person consultation it was impossible to visit a jurisdiction for more than three days, which made attendance for participants difficult in some circumstances. Additional effort was made around communications, and resources were drafted in to support invitations to the in-country consultations. Reminders were also issued to virtual participants to ensure the public consultation remained on their radar.

6. **Translations.** The translation period allowed under the revised pre-consultation schedule was two weeks. This proved to be insufficient for delivering technically-sound translations that reflected linguistic and structural nuances. The need to wait for translated versions also shrunk the amount of time available to in-country consultees to review the draft and engage with their constituencies. The draft Standard made it clear that the English version should be considered as the definitive version, and this was reiterated during the consultation process.
7. **Dealing with information asymmetry.** A challenge with taking a multi-stakeholder approach to addressing an issue that is largely specific to one industry is that, by definition, the industry was better placed to provide detailed technical input on the draft Standard as it developed. This risked creating a perception from the outside that the process was overly influenced by the industry who were seeking to self-police. To combat this potential imbalance the Chair, in his role as facilitator, maintained consistent communication with all three parties. He also allowed additional time for the non-industry co-conveners to engage within their respective constituencies, particularly on technical aspects, and made himself available as and when requested to discuss specific issues.
8. **Finding the right language within the Expert Panel.** The multi-disciplinary composition was not without its challenges. As with the establishment of any team, the Panel went through a period of learning, adapting and familiarisation both with each other in terms of ways of working, and with those disciplines outside their area of expertise. Over time, trust was built, and a working 'language' emerged through which all experts, regardless of background, could engage. An example of this is the different interpretations of the term 'management systems' which can imply different types of activities for the technical teams compared with the environmental and social teams. Much effort was therefore expended in carefully clarifying the boundaries and the areas of intersection between these different understandings.
9. **Finding widely understood terminology globally.** As mentioned previously, independence was a core tenet of the Review. This gave the Panel

the freedom to think innovatively and not be constrained by what had or had not worked in the past. However, and in connection with comments on the need for a common language among the experts, one challenge which arose was to find a language that adequately covered the multitude of processes, systems and terminologies that are used at an operational level across the world. To this end, the Panel took efforts to engage further with industry professionals across a range of disciplines to ensure that the Requirements and Glossary terms were easily understood and aligned with currently accepted mining-industry parlance.

10. **Balancing the objectives of three disparate parties with distinct interests and perspectives.** For the co-conveners, it was important that their positions were respected and that their objectives were positioned in an amenable way so as to not exclude the other co-conveners. For the Chair, keeping the views of the co-conveners at the back of mind throughout the process was vital to ensure equitable representation of the co-conveners.

5. CONCLUSION

The Review took just under a year and half to complete: from the public commitment by the three co-conveners to jointly assemble an independent review on tailings management, up until the public launch of the Standard. Using an open and honest dialogue and consensus building throughout the entirety of the process, the co-conveners managed to reach agreement and deliver the best possible product to help improve the way tailings facilities are designed, built, monitored, managed and closed. Looking ahead, it will be critical for all stakeholders involved to date to remain as committed during the next phase – the implementation of the Standard.